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"Hearing the Voices of the Poor": Assigning Poverty Lines on the Basis of Local Perceptions of Poverty. A Quantitative Analysis of Qualitative Data from Participatory Wealth Ranking in Rural South Africa

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Summary. — We applied a mixed-methods approach to participatory wealth ranking (PWR) to identify the number of poor households in eight villages of rural South Africa and describe how poor they are. We generated a household wealth index on the basis of the ranking process and statements made on standard of living. Descriptions from PWR identified households as "very poor," "poor, but a bit better off," or "doing OK." Of 9,671 households, 3,113 (32.2%) could be considered "very poor" or "poor." The paper presents a novel approach to wealth ranking that generates a rich appraisal of poverty.

* The method of PWR used in this study has been developed over many years by the Small Enterprise Foundation (SEF), in particular Ben Nkuna and Anton Simanowitz. The rigorousness of their methods are of key importance in interpreting the results presented here. We would like to acknowledge all of the members of SEF staff who contributed to the conduct of PWR. Field staff and interns of the Rural AIDS and Development Action Research program also helped in the collating, entering and coding the data, particularly Edwin Maroga, Joseph Mhlaba, Christopher Martin, and Katharine Rowe. Finally, many thanks to Ravi Kanbur, Paul Shaffer, and two anonymous referees for their insightful comments on the text. The IMAGE study is supported by funds donated by the Kaiser Family Foundation, the Ford Foundation, the Enterprise Development Innovations Fund (DFID), and the South African National Department of Health. Final revision accepted: October 20, 2005.

Key words — poverty, poverty line, participatory wealth ranking, mixed methods, South Africa

1. INTRODUCTION

Poverty appraisal is essential for targeting, prioritizing, and planning poverty reduction measures, and for monitoring the impact of these measures over time. In addition, data on poverty can be used to examine inequalities between those at the top and bottom of the scale.

The tools of poverty appraisal include household surveys and participatory approaches. Income/expenditure surveys provide objective, quantitative data that can be collected on large, generalizable samples of households, examined using statistical methodology and are comparable across time and place (Deaton, 1997). However, such surveys may miss important dimensions of poverty, and are expensive, complex, and time consuming to conduct (Chambers, 1994). In contrast, participatory processes are used to provide qualitative insights into local poverty issues with a greater depth and detail. They are generally more rapid than the conduct and analysis of surveys. However, these techniques are usually characterized as subjective and small scale, and their results are difficult to generalize or compare across contexts.

Increasingly, however, it has been suggested that participatory techniques can be used to generate statistics (Barahona & Levy, 2002). In support of this literature, this paper describes an application of participatory wealth ranking (PWR) that attempts to combine the traditional strengths of both survey and participatory approaches. We focus on two specific goals of poverty appraisal: identifying how many poor households there are and assessing their level of poverty (Ravallion, 1992). A large scale application of wealth ranking was used to collect data on the total population of generalizable to a population of eight villages (nearly 10,000 households). An innovative method was used to combine qualitative and quantitative data to increase the comparability of the information produced across contexts, while the strengths of PWR were maintained since local perceptions of poverty were formally used to classify households into socioeconomic welfare rankings and to assign poverty lines. By maximizing these dual strengths, the methodology presented might be used to increase the utility of participatory approaches in guiding policy and practice.

2. AIMS OF THE RESEARCH

Identifying the number of poor households involves at least two steps. Firstly, data on household economic status must be collected and analyzed. Income/expenditure surveys have limitations, but remain regarded as the gold standard method for the assessment of economic welfare (Henry, Sharma, Lapenu, & Zeller, 2000). More rapid survey-based techniques have also been developed, many of which do not conceptualize socioeconomic status solely in terms of income. In recent years, relatively simple survey data on asset ownership have been combined using a variety of approaches to generate a household wealth index (Filmer & Pritchett, 2001; Garenne & Hohmann-Garenne, 2003; Henry *et al.*, 2000; Morris, Carletto, Hoddinott, & Christiaensen, 2000; Schellenberg *et al.*, 2003).

The second stage in identifying the number of poor households is the application of a poverty line, an area that has generated considerable conceptual and philosophical debate (Sen, 1983; Townsend, 1985). Poverty lines have usually been applied to income/expenditure data. One way of differentiating the many types of poverty lines is according to whether or not they are based on some concept of basic needs. To apply an *absolute* poverty line, the income/expenditure of households in a survey is calculated and appropriately weighted on the basis of household composition. The value of goods deemed necessary to support basic needs is then calculated, and this figure is applied to the weighted data collected in the survey. Households not meeting the required income/expenditure level are deemed poor (Ravallion, 1992). Alternatively, a *relative* poverty line might be employed. To do this in its simplest form, the values of the economic data are ranked, and a proportion are deemed poor (e.g., the 10% lowest might be considered poor). Studies that have combined asset data to generate a wealth index have also sought to group households by economic status. Generally, this has been done through the application

of percentiles (usually terciles or quintiles) to the wealth index data (Gwatkin, Rustein, Johnson, Pande, & Wagstaff, 2000; Schellenberg *et al.*, 2003), a method equivalent to the relative poverty line approach.

Data on income/expenditure combined with an absolute poverty line to classify households as poor or not poor yields a measure of the prevalence of poverty. However, this measure does not describe the level of poverty experienced by poor households. A number of measures, including the poverty gap index and several measures of poverty severity, have been proposed (Foster, Greer, & Thorbecke, 1984; Sen, 1976). These augment poverty prevalence data with some measure of the gap between the income level of poor households and the poverty line level. There have been few attempts to formally calculate such measures when asset data have been used to generate an index of relative wealth.

Participatory techniques to investigate poverty have been widely used in development research and practice for some time, but have been less used in other fields. PWR is one widely used tool adopted to promote discussion on locally relevant dimensions of poverty. However, it has not generally been used to generate data on the prevalence or depth of poverty. Nevertheless, standardized methods for large scale PWR are now available (Simanowitz, Nkuna, & Kasim, 2000). In this paper, we suggest that PWR can provide a thorough appraisal of poverty on a scale suitable for the generation of statistics that can be used to inform policy. Our specific objectives were

(i) to generate a quantitative household wealth index that was directly linked to qualitative statements about well-being collected during participatory wealth ranking,
(ii) to use participants' descriptions of what constituted poverty in their setting to apply poverty lines to the index,
(iii) to discuss the utility of this approach compared to poverty appraisals generated using more established data collection and analysis techniques.

3. METHODS

(a) *Study context*

The study was conducted in eight rural villages of Limpopo Province, South Africa. While the political landscape of the area has changed substantially during the past decade, many of the realities of life have steadfastly remained constant. The province is among the most deprived in the country (McIntyre, Muirhead, & Gilson, 2002). Nearly 50% of the population is under 15 years old (Udjo & Lestrade-Jefferis, 2000). Unemployment runs in excess of 40% (Lestrade-Jefferis, 2000), and there are very high levels of labor migration among both sexes (Kahn *et al.*, 2003). While ploughing the land remains a survival tactic for many families, few have land or livestock sufficient to completely support their livelihoods.

The PWR discussed here was conducted as a part of the baseline evaluations for the IMAGE Study (Intervention with Microfinance for AIDS and Gender Equity). This was a community-randomized trial of the impact of a combined poverty-alleviation/gender-empowerment program on sexual behavior, gender based violence and HIV infection rates (Hargreaves *et al.*, 2004; RADAR, 2002a, 2002b; Pronyk *et al.*, 2006).

(b) *Field methods*

PWR was conducted by the specialized staff of the Small Enterprise Foundation (SEF), Tzaneen, South Africa, according to standardized guidelines (Simanowitz & Nkuna, 1998). The usual operational aim of the PWR process is to identify the poorest households within communities in order to target their inclusion in a microfinance program. In the IMAGE study, PWR was also conducted in villages where no microfinance services were to become available. All of the stages of PWR are facilitated by a trained SEF staff member.

Community members are invited to an open meeting in the village. After introduction of the project, groups of individuals residing in defined village sections get together and draw a map of their residential area. Typically, this area might hold 50–200 households. The participants number all households on the map and provide a list of household head names or other dwelling identifiers. This process takes approximately one day.

The following day smaller meetings are held with four to six residential area members at a time. These are usually predominantly women from poorer households, although any adults from the village section may participate. This group is first led in a facilitated discussion on the aspects of poverty in the village. Partici-

pants are asked by the facilitator to characterize households that are "very poor," those that are "poor, but a bit better off" and those that are "doing OK." These questions are posed in turn to participants and the proceedings of the ensuing discussion are captured by the facilitator in the form of short statements.

Households in a given section are then ranked from the poorest to the most well off according to the definitions provided. Households from the map are randomly selected, and the group is asked to compare them with the other households in the area. As the process proceeds, a number of piles of similarly ranking households are generated from the poorest to the wealthiest. At the end of this process, participants are asked to describe the characteristics of the households in each ranking pile. Each pile is discussed in turn, and these discussions are also recorded by the facilitator in the form of short statements. Neither the number of ranking groups nor the number of households that are to be put in each group is determined in advance, although at least four separate rankings are required to validate the process valid.

The ranking process is then repeated twice more with different groups of four to six community members, so that each household is ranked on three separate occasions.

(c) *Data manipulation*

The field methodology described above has been employed by the Small Enterprise Foundation for many years, has been standardized across the organization, and its results have been well documented (Simanowitz *et al.*, 2000). In our work, we saw this as a strength of the procedure and did not wish to change the established field methodology. Rather, we wished to interrogate the data generated from PWR with a greater intensity than is normal in operational work. This process involved a number of stages of data manipulation and analysis which are described below.

(i) *Statement coding*

As described in the previous section, data in the form of text statements were collected at two stages of each ranking process. The first of these is before wealth ranking is performed, in response to three general questions about characteristics of households in different wealth bands ("very poor," "poor, but a bit better off" and "doing OK"). We shall refer to these descriptions as *general statements*. The second collection of text data occurs after the wealth ranking process is completed, when respondents are asked to describe the characteristics of households in each ranking pile. We shall refer to these descriptions as *pile statements*. The same statements were often made during both of these processes.

Statements of both types were entered into a database. *General statements* and *pile statements* were coded using the same technique. We adopted a method in which the coding scheme was devised as coding progressed. Codes were grouped in themes, sub-themes, and specific statement codes. Statement codes were kept as specific as possible. An example is the following: "Have food," "Able to buy food," and "Able only to buy food" were each coded under the *Theme* "Food" and the *sub-theme* "Presence of food," but were each given separate *statement codes* since each has a slightly different meaning. Conversely, the statements "no food," "they have no food" and "no food available" were all given the same *statement code* since there is no discernable difference between their meaning. Statements of both types could be assigned up to three separate codes if they had composite meaning.

(ii) *Assigning a score to the ranking piles*

As described in the field methodology section, households in a given village section were ranked by three independent groups of PWR participants. Within each of these three ranking processes a number of "ranking piles" of households are generated. We assigned each pile a score such that the wealthiest pile (pile 1) received a score of 100 and the poorest pile (pile N) received a score of 0. The scores for the remaining piles were calculated as *Score for pile* $n = 100 * ((N - n)/(N - 1))$, where n is the pile number and N is the total number of ranking piles. For example, in a situation where five ranking piles were formed ($N = 5$), pile 1 (wealthiest) was given a score of 100, the next pile a score of 75, then 50, 25 and finally 0 for pile 5 (the poorest pile). [1]

(iii) *Pile statement scoring*

Coded *pile statements* made in relation to each of the ranking piles generated during the three ranking processes conducted in each village section were assigned the numeric score allocated to the pile (as described above). An average score was then calculated for each coded *pile statement*. The average *pile statement* score was calculated as the mean of the pile

scores to which that statement was associated, covering the full PWR process in all eight villages. For example, suppose the statement "able only to buy food" was made 10 times during all the ranking sessions that occurred. Suppose further that the statement was made eight times in relation to the poorest pile in given rankings (scoring 0), and twice in relation to piles that were ranked second-poorest in ranking sessions that generated five wealth ranks (scoring 25 each time). In this case, the average pile statement score for this statement would be $((0 * 8) + (25 * 2))/(10) = 5$. A *pile statement* score was only generated for coded statements made more than three times during the entire PWR process covering all villages.

(iv) *Generating a household wealth index*

As a result of the three ranking processes for each village section, each household was included in three piles. Each of these three piles had *pile statements* associated with it, and each pile statement will have been allocated an average *pile statement* score (as described above). A household wealth index for each household was then calculated as the mean of the *pile statement* scores of all the pile statements made in relation to the three piles into which that household was ranked. This technique ensures that there is a direct link between the household wealth index and the score each statement receives.

(v) *Generating poverty lines*

In order to generate poverty lines, a list of all the pile statements was made in descending order of their average *pile statement* scores (see Table 2). Alongside each *pile statement*, we included a count of the number of occasions each statement was mentioned in the three *general statement* categories "very poor," "poor but a bit better off" and "doing OK." We then sought to apply a visual assessment to Table 2 to see if obvious cut-off scores could be applied to group the *pile statement* scores into categories corresponding to "very poor," "poor, but a bit better off," and "doing OK."

As the household wealth index is composed of an average of *pile statement* scores we judged it appropriate to apply the same numeric cut-off scores identified in the visual assessment to the household wealth index. The final stage of our analysis was to apply these cut-off scores to the household wealth index to group households into wealth bands on the basis of these local perceptions of poverty.

4. RESULTS

(a) *The PWR process*

PWR was conducted between June and October 2001, with a small, specialized staff working part time over that period. There were 9,824 dwellings identified in a total of 79 village sections in eight villages. Validation exercises suggested that a small number of households remained unmapped in each village.

Three ranking sessions occurred in each of the 79 village sections, thus giving 237 ranking sessions that occurred in total. Across all of these ranking sessions a total of 3,553 *general statements* were coded describing the general properties of households seen as "very poor" (1,240), "poor, but a bit better off" (1,097) or "doing OK" (1,216). A further 8,856 *pile statements* were coded, describing specific groups of households within the piles assembled by the wealth ranking process. In total, the statements were coded under 33 themes, and 880 statement codes. Some 81.1% of statements were assigned only one code.

In the later parts of the analysis described here the data were restricted to statements made on multiple occasions. There were 319 *pile statement* codes used on more than three occasions and final *pile statement* scores were assessed for these. There were 168 *general statement* codes used more than three times. In the final part of this analysis 131 statement codes, under 23 themes, that were made more than three times in both stages were used to generate the table used to assess poverty lines (Table 2).

A final wealth index was available for 9,671 dwellings (98.4%). Between 4 and 11 ranking piles were formed in each process, with six being the most common. In most ranking sessions the number of households ranked in the poorest piles was higher than those in the wealthiest piles.

(b) *Poverty themes*

The themes delineated during PWR, and the frequency with which they were raised among all statements made in the two stages are given in Table 1. Employment was the theme most regularly raised by participants in describing relative wealth characteristics. The schooling of children, housing conditions, and food security were also regularly mentioned. Alternative ways in which income may be generated were also mentioned regularly, including self

Table 1. *Themes raised in discussions of poverty during participatory wealth ranking conducted in rural South Africa*

Theme	General statements		Pile statements		Total	
	N	%[a]	*N*	%[a]	*N*	%[a]
Employment	577	14.5	2,236	21.3	2,813	19.4
Schooling	557	14.0	1,351	12.9	1,908	13.2
Housing	559	14.0	1,229	11.7	1,788	12.3
Food	506	12.7	921	8.8	1,427	9.9
Self employment	380	9.5	922	8.8	1,302	9.0
Clothing	399	10.0	755	7.2	1154	8.0
Family and household	146	3.7	781	7.4	927	6.4
Money	162	4.1	535	5.1	697	4.8
Pensions	100	2.5	499	4.8	599	4.1
Cars	177	4.4	297	2.8	474	3.3
Begging	91	2.3	134	1.3	225	1.6
Towns	0	0.0	216	2.1	216	1.5
Need	10	0.3	96	0.9	106	0.7
Dirtiness	42	1.1	60	0.6	102	0.7
Water	28	0.7	49	0.5	77	0.5
Survival skills	11	0.3	65	0.6	76	0.5
Societies and stokvels	34	0.9	37	0.4	71	0.5
Other assets	34	0.9	35	0.3	69	0.5
Health	31	0.8	31	0.3	62	0.4
Furniture	24	0.6	24	0.2	48	0.3
Livestock	19	0.5	26	0.2	45	0.3
Planning	16	0.4	25	0.2	41	0.3
Fighting	6	0.2	29	0.3	35	0.2
Happiness	16	0.4	19	0.2	35	0.2
Depended upon/employ ...	20	0.5	14	0.1	34	0.2
Telephones	8	0.2	25	0.2	33	0.2
Employ home help	3	0.1	23	0.2	26	0.2
Position within society	3	0.1	20	0.2	23	0.2
Electricity	11	0.3	11	0.1	22	0.2
Crime	10	0.3	5	0.1	15	0.1
Whites	3	0.1	11	0.1	14	0.1
Land/agriculture	9	0.2	3	0.1	12	0.1
Lifestyle	0	0.0	9	0.1	9	0.1

[a] Reported percentages are as a percentage of all coded statements.

employment, begging, pensions (or grants) and societies/stokvels, [2] as well as direct mentions of money or income. A variety of non-financial topics were also listed, for example, dirtiness, health, fighting, planning, and happiness. Of interest in this rural, but densely populated, former bantustan of South Africa is the infrequency with which livestock, land and agriculture were raised in these discussions.

It is important to note in interpreting Table 1 that the way in which the questions are asked is to delineate households within villages that are doing relatively better or worse. This does not encourage the consideration of hugely important factors that affect whole communities. Our experience in the area suggests that better water supply, roads and schools, complete electrification, general economic development, job creation, and crime reduction are widely seen as developments that would improve the lot of all. What the descriptions given here relate to is how people in the area, all of whom live in this society with relatively basic infrastructure, rate their own well-being in comparison with their neighbors.

(c) *Poverty statements*

Table 2 shows the 131 statements made more than three times in both the pile statements and

Table 2. Pile statement *scores and frequency of statements made during participatory wealth ranking in rural South Africa, in descending order of* pile statement *score*

Pile statements		Theme	Statement	General statements			
				No. of times said			
Pile statement score	No. of times said			Very poor	Poor but bit better off	Doing OK	
0.0	7	Food	Don't have soup	10			Very poor ↓
0.0	6	Health	Mental illness	4			
0.0	22	Family and household	Orphanhood/no parents	24			
0.0	8	Employment	Widows/deserted wives without jobs	5			
0.4	39	Food	Beg for food	33			
0.8	24	Need	Needy	4			
0.9	16	Societies and stokvels	Not in societies	10			
1.1	85	Begging	Begging	49			
1.8	11	Family and household	Widow	15			
2.8	28	Dirtiness	No soap	15			
3.1	4	Societies and stokvels	Unable to join burial society	7			
3.1	134	Food	No food	137			
3.2	41	Housing	Not got shelter	33			
3.7	58	Employment	No one is working	34			
5.2	101	Schooling	Doesn't go to school	39			
5.6	73	Clothing	No clothes/do not have clothes	73			
5.7	199	Employment	Not got job(s)/unemployed	113	4		
5.8	22	Food	Sleep without food	17	15		
6.2	10	Housing	One room	7			
6.3	20	Housing	Has no place to sleep	11			
6.4	82	Money	Don't have/earn money/income	49			
7.7	14	Food	Going to school without eating	7			
8.3	100	Schooling	Unable to/can't afford to go to school	66			
9.0	67	Housing	Not got housing	65			
9.6	37	Schooling	Cannot afford/does not pay school fee	18			
11.9	23	Clothing	Tattered/torn/poor clothes	20			
13.3	53	Housing	Mud housing	10			Very poor ↑
14.4	76	Housing	Shacks	18	15		Poor ↓
15.0	51	Housing	No proper housing/shelter	18	6		
15.3	11	Self employment	Dig toilets		4		
15.5	19	Survival skills	Have survival skills		9		
15.8	26	Clothing	Do not have proper clothes	14			

17.0	56	Schooling	Don't have uniforms	14	5	
17.0	14	Self employment	Depends on selling fruit/vegetables		14	
17.3	31	Schooling	No shoes/barefoot at school	9	4	
17.9	13	Clothing	Children don't have clothes	10		
18.0	5	Employment	Parents unemployed	5		
18.4	32	Clothing	Children have tattered/torn/poor clothes	9		
18.5	27	Fighting	Stand and fight		5	
19.0	12	Self employment	Collect/sell firewood		6	
21.8	34	Schooling	Pays school fees late	9	6	
22.0	9	Food	Not able to buy/can't afford food	4		
22.7	64	Housing	Bad/poor housing	19		
22.7	13	Self employment	Depends on a small business		14	
23.8	10	Food	Not proper food	4		Poor ↑
24.0	5	Housing	Cannot afford to buy/build		4	Poor, but a bit better off ↓
24.0	175	Employment	Farms		80	
24.4	26	Food	Not enough food	4	6	
26.6	31	Employment	Retrenched		8	
28.4	145	Self employment	Selling fruits and vegetables		39	
28.5	71	Food	Mealy meal only		37	
28.7	99	Employment	Domestic work		45	
29.9	60	Pensions	Pension and many responsibilities		25	
30.3	45	Pensions	Pension and many children/ grandchildren to look after		14	
31.8	41	Schooling	Attains primary		8	
31.8	24	Food	Have mealy meal		15	
33.3	52	Employment	Temporary work			5
34.2	6	Clothing	Struggle to get clothes		6	
34.7	26	Food	At least have food		19	
35.1	28	Food	Little food		33	
35.4	8	Schooling	Can/does pay school fee only for some kids		4	
35.7	47	Self employment	Self employed		17	
38.2	55	Clothing	Secondhand clothes		21	
39.4	70	Money	Little money/income/earn less		29	
39.8	44	Housing	Small/little housing		26	
40.4	25	Schooling	Attains Matric/std 10/grade 12		17	
41.1	4	Pensions	Depend on pension		14	

(*continued next page*)

Table 2—*continued*

Pile statements		Theme	Statement	General statements			
				No. of times said			
Pile statement score	No. of times said			Very poor	Poor but bit better off	Doing OK	
43.2	93	Schooling	Attains secondary		15		
43.4	54	Self employment	Selling/hawking (unspecified)		10		
44.4	70	Pensions	Receiving pension		16		
44.7	5	Housing	At least got housing		7		
46.2	38	Self employment	Has/owns/runs small business		12		
51.0	92	Food	Able to buy food		6		
51.6	105	Employment	Local shops		5		
52.7	20	Schooling	Doesn't attain university/tertiary		8		
54.0	21	Housing	Has place to sleep		5		
55.4	22	Housing	Got shelter		12	6	
55.7	49	Schooling	Can pay school fees		9		
55.9	57	Housing	Got housing		7		
57.1	16	Pensions	No longer receive pension	6			
58.4	26	Food	Have food		10	6	
59.3	22	Money	Has/earns money/income		11		
59.4	38	Schooling	Goes to school		4		
61.4	79	Schooling	Able to/affords to go to school		29	4	
63.1	7	Employment	At least one household member with a job		6		Poor, but a bit better off ↑
64.0	10	Livestock	Have cattle		4	8	A bit better off ↓
64.4	8	Clothing	Have proper clothes		5		
64.8	8	Housing	Can at least afford to buy/build		5		
65.4	28	Employment	Got jobs/employed		24	18	
66.3	73	Schooling	Has uniform		6	9	
68.9	140	Housing	Good/better/decent/nice housing			6	
69.5	46	Clothing	Have clothes		11		A bit better off ↑
71.0	32	Clothing	Good clothes			58	Doing OK ↓
71.8	51	Clothing	Children have clothes			7	
72.2	63	Food	Good food/healthy			15	
72.9	136	Employment	Mine worker			4	
73.5	6	Employment	Permanent jobs		18		
74.9	27	Food	Food always there/regular food			4	
76.8	4	Other assets	Have everything they want			14	

78.1	7	Furniture	Good furniture	10	
78.6	26	Clothing	Children have good clothes	30	
80.4	124	Employment	Teachers	10	
80.8	134	Self employment	Taxis	41	
82.7	87	Money	Have/earn a lot of money/income	11	
83.1	104	Cars	Have/drive cars	50	
84.5	13	Food	Nutritious food	11	
84.5	25	Money	No problems with money	4	
84.7	101	Employment	Government	26	
84.8	162	Schooling	Attains university/tertiary	52	
86.4	97	Employment	Both husband and wife employed	18	
86.7	5	Food	Have a lot of food	6	
87.2	10	Schooling	Good school/education	4	
87.9	163	Housing	Big house	96	
90.1	15	Water	Have water in the home	10	
90.1	123	Schooling	Private/expensive	76	
90.4	73	Housing	Beautiful/attractive housing	42	
91.0	16	Telephones	Have phone(s) at home	4	
91.8	12	Schooling	Multiracial	5	
92.9	13	Food	Delicious food	37	
92.9	7	Self employment	Has a successful business	6	
93.4	12	Clothing	Labelled clothes	5	
93.8	65	Self employment	Has a business	47	
95.5	74	Self employment	Shop owners	32	
95.6	142	Cars	Have/drive expensive/flashy cars	102	
95.7	47	Housing	Tiled housing	21	
96.7	6	Dependence	Poor people depend on them	4	
97.0	11	Cars	Have/drive many cars	8	
97.1	23	Water	Have bored water in home	13	
97.9	15	Self employment	Has a big business	30	
100.0	4	Self employment	Has a renowned business	4	
100.0	6	Self employment	Has a strong business	5	Doing OK ↑

the general statements phases of the wealth ranking. This table requires discussion under a number of headings.

(i) *Pile statements*

In the two left hand columns of the table are given the number of times each statement was made in total during the *pile statement* phase of the ranking procedure and the associated average *pile statement* score. The statements in the table are listed in the descending order of their *pile statement* scores, such that those statements most often made about piles of the poorest households appear at the top of the table.

Looking at the table from top to bottom gives some idea of the range of well-being described for residents of the area. PWR participants give a strong sense that households ranked among the poorest piles are struggling to survive. Such households are struggling to feed themselves and to clothe or educate their children. They have little or no access to jobs or housing. Further down the table are descriptions that relate to households that have access to relatively low paid jobs and a basic ability to meet basic human rights (food, education). It is interesting that simply having water in the home, appears in the last quarter of the table, suggesting that water remains a key, limited resource for most households in the study area. More generally, even at the top end of the well-being scale relatively basic services and opportunities are seen as important.

The distribution of themes is also interesting. Statements relating to food, schooling, and housing were often made along the whole scale. For example, those with "no food," or who "beg for food" appear at the top of the table, those who "eat mealie meal only" [3] or "have little food" appear some way down, while participants suggested that the wealthiest eat "delicious food." Conversely, some themes were only mentioned with relation to specific wealth ranks. For example, while the presence of cars was often used to describe the wealthiest households, their absence was rarely used to describe lower groups in the ranking.

Finally, it can be illustrative to examine specific statements relating to a single theme throughout the length of the table. For example, the table provides information on the range of employment opportunities in the area. As might be expected, statements relating to the absolute absence of jobs are associated with scores near 0. Further down the table, working on farms, domestic work, and building all appear as relatively low income pursuits, while toward the bottom of the table it can be seen that mine workers, teachers, the police, and government workers are perceived to be employment types associated with the most well-off households.

(ii) *Assigning poverty lines*

On the right hand side of Table 2 are tallies of how often each of the statements listed were mentioned in relation to each of the three questions asked during the *general statements* phase of wealth ranking. As might be expected, there is a pattern such that those statements with the highest scores were almost always said in relation to "very poor" households, and conversely those with the lowest scores were most often said about those who were "doing OK." A small number of statements appear as outliers, such as, "sleep without food" which is largely surrounded by statements made exclusively in relation to the "very poor category," but which itself was also said in relation to the central category. A larger group of statements appear between bands of statements made in response to particular wealth groups. Some of these were distributed relatively evenly between two of the wealth groups asked about. For example, "has cattle," "has [school] uniform" and "got jobs/employed" are grouped together, and were all stated a number of times in relation to enquiries both about "poor, but a bit better off," and "doing OK" households.

There was strong agreement between statement scores and the wealth groups the statements were made about. Consequently, we judged that it was safe to apply poverty lines on the basis of this. The areas of the table identified by arrows show this. We have applied poverty lines only on the basis of qualitative judgement, without using mathematical or a-priori decided formula. In doing so we have identified five groups of statements, and consequently five bands of statement scores. Three of these groups relate directly to the posed questions about households that were "very poor," "poor, but a bit better off" and those "doing OK," while the remaining two are smaller bands in between the three main categories.

(iii) *Applying the poverty lines to household data*

The final stage in the analysis was to apply the poverty line scores delineated in the process above to the household wealth index calculated on the basis of the statement scores. We applied

Table 3. *Number of households within wealth bands delineated on the basis of local perceptions of poverty from participatory wealth ranking in rural South Africa*

Poverty group	Household wealth index (range)	Number of households	Proportion of households (%)
"Very poor"	0–13.8	2,358	24.4
Poor[a]	13.8–23.9	755	7.8
Poverty line			
"Poor, but a bit better off"	23.9–63.5	4,657	48.2
A bit better off[a]	63.5–70.2	537	5.6
"Doing OK"	70.2–100	1,364	14.1

[a] The labels "poor" and "a bit better off" were not directly asked about in the wealth ranking and have been added here for the purposes of description.

cut lines to the household data that were midway between the scores of the two statements at the edge of each band. For example, a poverty line has been drawn between the two statements "mud housing" and "shacks," whose statement scores were, respectively, 13.4 and 14.4. A cut off line was applied of 13.8 to the household wealth index data to identify between households that were "very poor" (scores above this) and those that were in a group between "very poor" and "poor, but a bit better off" households (scores below this, we have termed this group "poor"). In this way, we identified five groups of households.

As shown in Table 3, using these poverty lines it appeared that of all households mapped in the eight villages, 24.4% were deemed "very poor" by PWR participants. A further 7.8% might simply be described as "poor," covering the scores relating to statement scores split between "very poor" and "poor, but a bit better off." We suggest in this analysis that both of these groups of households should be considered below the poverty line. Following this comes a large group of households (48.2%) who are described as "poor, but a bit better off." This is followed in turn by another small marginal group (termed "a bit better off" here, and encompassing 7.8% of all households), before a final group of households that are "doing OK" (14.1%). Figure 1 presents a histogram of the

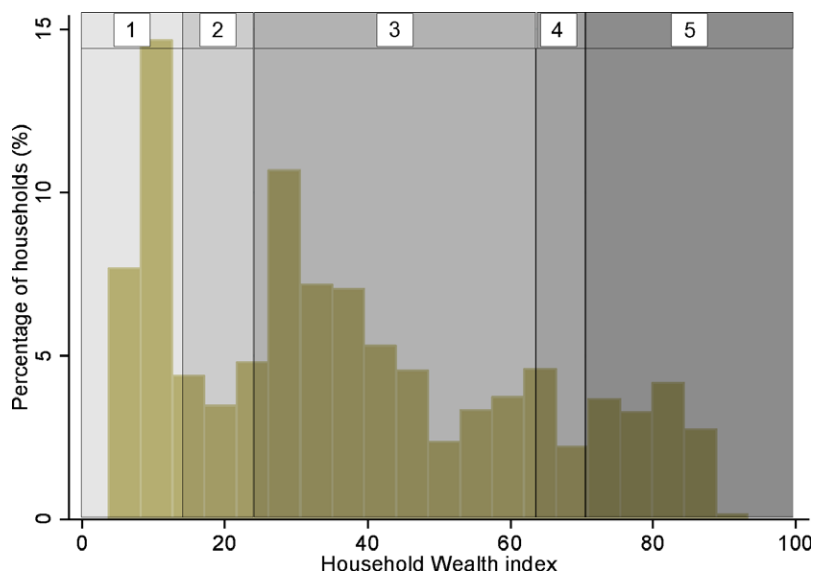

Figure 1. *Distribution of household wealth index derived from participatory wealth ranking, with five wealth bands represented by shading. Key: 1 = very poor, 2 = poor, 3 = poor but a better off, 4 = a bit better off, 5 = doing OK.*

household wealth index with the poverty groups from Table 3 applied to it, giving a clearer picture of the distribution of the index across the full range.

The values of the household wealth index can also be used in conjunction with Table 2. For example, a household with a score of 12 is clearly regarded as being "very poor" by local PWR participants (Table 3 and Figure 1). Table 2 gives a sense of the well-being of such a household. Around the score of 12 are the statements "tattered clothes," "cannot afford school fees" and "mud housing." The presence of these statements around this score does not indicate that the given household necessarily has any of these specific characteristics (i.e., the household wealth score is not defined by any of these), but rather that PWR participants rate the poverty level of this household similarly to households that exhibit these characteristics.

5. DISCUSSION

In this paper, we present the results of a poverty appraisal conducted in rural South Africa. The appraisal was generated through combining qualitative and quantitative approaches to the analysis of data collected during participatory wealth ranking. We generated a measure of household wealth, applied poverty lines to this measure in order to identify groups of households, including those that were "very poor" and "poor," and describe the characteristics of those households. The results presented are generalizable to an area encompassing nearly 10,000 households.

Through this technique we have identified a group of 24.4% of households that were categorized as "very poor" by local PWR participants. A further 7.8% of households were classified as "poor" by the authors of this paper. Households that were "poor" and "very poor" were characterized by descriptions of well-being indicating a genuine struggle to survive including a need to beg, limited access to food and housing and almost no access to formal employment. Some "poor" households were engaged in poorly remunerated activities such as digging toilets, selling firewood or having small businesses. We conclude, firstly, that the villages in the study area, located in the Tubatse municipality of South Africa's Limpopo Province are suffering severe, endemic poverty in urgent need of redress. Our study was not intended to be representative of any wider population than the eight study villages, but this pattern of deprivation may be matched in other rural areas in the province. Other recent reports have also suggested high rates of poverty, unemployment and food insecurity in Limpopo Province (Leroy, van Rooyen, D'Haese, & de Winter, 2001; McIntyre *et al.*, 2002; Rose & Charlton, 2003).

Our second conclusion is that our analysis of PWR data has generated a rich appraisal of the prevalence and depth of poverty in this region. We suggest that such data could be used or refined for use by policy makers. The approach described in this paper is novel, representing a significant departure from classical survey based techniques employed in poverty appraisal and a refinement in the use of participatory wealth ranking. The remainder of this discussion concentrates on methodological issues relating to our approach.

(a) *Methodological issues (i): Field methodology*

Recent literature has highlighted the importance of standardized methodology and statistical sampling techniques in generating statistics from participatory methodologies that might be used to influence policy (Barahona & Levy, 2002). We were fortunate in this study to work with a well established, standardized PWR procedure implemented by experienced practitioners. We cannot overemphasize the importance of this in contributing to our confidence in the results we report here. The current field process is designed to maximize participation, with participants not restricted in either the number of ranking piles they generate or the statements they make. While later sections of this discussion suggest potential alterations that might be investigated to further improve the utility of the data collected, we would also urge consideration of the impact of any such alterations on the field process.

Our aim in this work was to use wealth ranking to generate a list of households and a measure of wealth for all households in eight villages. A small number of households remained unmapped and unranked, yet our results can be confidently generalized to this study area. We would concur with other authors that careful sampling of sites in which to conduct PWR could generate poverty appraisals generalizable to district, province or even national level (Barahona & Levy, 2002).

(b) *Methodological issues (ii): Statement coding, statement, and household poverty scores*

In assigning codes and generating scores for statements and households we have made a number of assumptions and arbitrary decisions that are worthy of documentation here. In doing this, our intention is to highlight that the choices we made were choices and alternative ways of proceeding may have been possible. With no pre-existing literature to guide us, we made decisions in this work that we felt most closely took us toward our intended goal. Those wishing to repeat the work are likely to be faced with similar decisions and a description of some of them is useful here.

The coding system we developed did not have a pre-defined framework to guide it, but our intention was to capture themes of relevance in an analysis of wealth and poverty. We aimed to assign the same statement code only to statements with precisely comparable meaning. As such it is unlikely that an alternative coding system could have been developed at this level. However, the choice of themes under which to group statements is much more subjective and alternative theme-coding schema might be developed.

Our decision to use a statement scoring scale of 0–100 within each ranking was also arbitrary, but it seemed sensible to us to ensure that piles ranked in the top and bottom ranks received the same score. In our analysis, by calculating a household wealth index on the basis of statement scores we hoped to improve on some major limitations of PWR, particularly its lack of comparability across different contexts (time or place). To illustrate this limitation, we can conceive of two PWR processes, one conducted in a wealthy suburb of Johannesburg and another in a rural village with widespread unemployment. Within each ranking process, households will be ranked from poorest to wealthiest generating a number of wealth ranking piles. However, until now no formal methodology for linking these ranks to actual descriptions of well-being has been available, and thus it would not be possible to compare households of the lowest (or highest) rank across contexts. Additionally, the range of wealth reflected within each of the ranking piles is not known. The methodology we describe here, however, intrinsically links the household wealth index to statements made multiple times across the whole process, and to a reference table (Table 2) that describes characteristics of households deemed to be of comparable wealth within a given setting. This reduces the importance of the rankings themselves in assigning the score. Extending this principle further to allow full comparability across time or place would require significant further work, but we suggest this could well be a fruitful area for further empirical study. A number of issues would need further consideration in this regard. Firstly, the wealth ranking process itself is inherently relative, with statements being elicited from participants during a process that encourages comparison of households with other households in the same area. As such, the proposed approach simply transfers the relativity of a normal PWR process away from the ranking process itself to the domain of the characteristics identified. Comparability of the results of the process conducted in two different areas would assume that given statements generally have the same meaning in terms of relative wealth in different areas. This assumption might be likely to hold across a relatively homogenous area such as that described for this study, but may be unlikely to hold in very different contexts such as a wealthy Johannesburg suburb and a poor rural village. Secondly, it should also be noted that in the current application, statements were volunteered by respondents. As such, particular areas of interest were not systematically enquired about. An area of investigation that might be fruitful in dealing with these limitations might be systematically including in the wealth ranking process the consideration by participants of a small number of a-priori defined "absolute wealth statements." For example, following the ranking process, participants might be asked to identify all ranking piles for which they feel it is true that, "On average, more than half of the households in this pile do not have enough food to eat at least once a week." By locating similar absolute wealth statements within all wealth ranking sessions, it may be possible to develop a method by which data from rankings conducted in very different settings could be standardized so that households could be judged both relatively within contexts, but also across contexts. This is an area of great potential interest, but, for example, the wording of such absolute poverty statements would itself prove complex. Current initiatives to link PWR to such concepts as "dollar a day" might consider such strategies (USAID, 2004).

Finally, the decision to limit our analysis to include only statements made more than three

times was also arbitrary. We wished to limit the weight of statements made infrequently in generating the household index. However, we also wished to allow as many statements as possible, reflecting a wide range of themes, to contribute to the analysis. We also wished to be able to generate a score for as many households as possible. In this large scale application of PWR, when limiting to over three statements we were still able to generate a household wealth score for all households that were ranked on two or more occasions. In smaller applications it may be necessary to include statements made less than three times to ensure this.

(c) *Methodological issues (iii): Applying poverty lines*

In this field methodology of PWR, questions were asked about households that were "very poor," "poor, but a bit better off" and those "doing OK." These questions were originally designed to facilitate a discussion of poverty among PWR participants, and it is unlikely that they are interpreted by participants in precise terms. However, the use of these questions does not allow an easy delineation between the "poor" and the "non-poor" as has been set out as a goal of this poverty appraisal. The inherent relativity of the ranking process itself also suggests caution in identifying absolute poverty lines. While many of the statements made in Table 2 appear to relate to an underlying absolute poverty judgement (e.g., "they have no food"), these statements were elicited in a process that inherently asks participants to judge households' *relative* poverty.

In this analysis, we have identified two marginal groups of households, that we have termed "poor" and "a bit better off." This decision is also arbitrary—one might also, for example, decide to concentrate only on the original three questions and identify only three strata of households. In this method, poverty lines might be assessed as midway between the three major groupings ("very poor," "poor but a bit better off," and "doing OK").

Finally, in our analysis we have suggested grouping together the "very poor" and "poor" households to count as those identified as being below the locally relevant poverty line. This decision is also subjective. We do not know how sensitive the lines would be to slight changes in the wording of the questions asked of PWR participants, nor how they would correspond to an absolute poverty line generated on the basis of basic needs and applied to expenditure data. In fact, we do not know whether our wealth score would rank households similarly to a ranking based on income/expenditure data, and even if they were perfectly matched we do not know if poverty lines applied to the two techniques would classify the same households as "poor."

(d) *Comparing the results of PWR with other approaches to poverty appraisal*

An extensive discussion of the validity of the PWR technique described here is beyond the scope of this paper. However, a brief review in this regard is necessary to inform a discussion of the utility of this method in generating an appraisal of poverty.

Some previous studies have reported that wealth ranking techniques correlate well with the standard indicators of socioeconomic status collected in surveys (Adams, Evans, Mohammed, & Farnsworth, 1997; Scoones, 1995; Temu & Due, 2000). Others have suggested that there are important differences between PWR and more standard economic techniques (Jodha, 1988; Shaffer, 1998), or that the results of participatory approaches are unreliable (Bergeron, Morris, & Medina Banegas, 1998). These studies have generated conclusions using a variety of different methodological approaches to collecting data, while judgements on validity have been made using a range of statistical and qualitative approaches. This heterogeneity makes it difficult to compare the conclusions of these studies. In work presented elsewhere, our group has assessed the statistical *correlation* and *agreement* between the ranking of household wealth generated by PWR described in this paper and an index of socioeconomic status based on a multi-indicator survey approach incorporating a principal components analysis (Hargreaves *et al.*, 2006). Assessing *correlation* is most appropriate when the association between two different measures is being assessed (e.g., measured income and area of land owned). Statistical *agreement* (or reliability) assesses how well two measurements agree in their measurement of a single construct (in this case, relative wealth rank). Consequently, two measures would be perfectly correlated if one was always two times higher than the other, while this would obviously represent a poor agreement between them. We found a statistically significant correlation between PWR wealth rank and that generated

from the survey data (Pearson correlation, $r = 0.31$, $p < 0.05$), yet agreement between the two methods in ranking households into wealth terciles (assessed by kappa statistic = 0.17) suggested limited agreement between the two approaches in their ranking of household wealth. The reasons for this are likely to include data inaccuracies from both techniques as well as the potential that they are ultimately measuring different things. Of interest, however, in the same analysis we found a high level of agreement between the three independent groups that rank each household's well-being within PWR (intra-cluster correlation coefficient = 0.81) (Muller & Buttner, 1994). This finding makes it unlikely that in general participants either did not know the wealth of households in their own village, or that small groups of participants were able to bias the wealth ranking. PWR produces a highly internally consistent (reproducible) measure of household wealth. Income/expenditure data are generally regarded as the most effective way of capturing household economic status and more comparative studies with PWR would be an important contribution to the literature. The complexity of capturing such sensitive data, particularly in a complex rural society where migrancy, remittance, and social capital are all important components of the context should not, however, be underestimated. In our view, the current literature, along with our own work, supports the view that standardized PWR methodology should be investigated with rigorous, empirical studies as a potentially valid tool for assessment of household wealth.

In the absence of clear conclusions on the validity of PWR, it is nevertheless useful to examine the types of data and appraisals of poverty the different techniques generate. We set out with two core poverty appraisal goals in this work, to assess the number of poor households and to describe how poor they are. Income/expenditure surveys that employ an absolute poverty line identify those who are currently unlikely to be able to afford basic goods necessary to support the household. In primarily cash driven contexts the approach has obvious intrinsic appeal, and has the advantage that, allowing for exchange rates and price differences, measures can be compared easily across time and place. The PWR method used here identifies those households regarded by their neighbors as "very poor." It is less easy to transfer this across contexts, not least because of complexities in language. This application of wealth ranking was conducted in Sepedi, using the question "*Mohloki wa mafelelo ke motho wa mohuta mang?*" to ask "what is a very poor person?" How directly this phrase translates into other languages and cultures would warrant investigation. As suggested earlier, a more transferable process in assigning a poverty line to the statement score data might be identifying key phrases and applying a poverty line on the basis of the point at which these appear in the reference table.

In contrast, survey based methodologies that combine indicators of wealth have rarely attempted to generate absolute poverty lines and assess the prevalence of poverty. Rather they have tended to cut the population in to relative groups—for example, the poorest tercile, a middle tercile, and the wealthiest tercile (Henry *et al.*, 2000). It would then be possible to describe the profile of these terciles in terms of the indicators on which data is collected. This would also be useful since when complex statistical methodologies are used it is difficult to keep a feel for the data in the index generated. A similar approach might also be applied to the PWR approach generated here, where the most common statements related to terciles derived from the wealth score could be described to give a sense of the well-being of those included in each category. Finally, such an approach might also be used for income/expenditure data, where the average income of households in income terciles could be described.

The strategies described above, using relative poverty lines and then describing the wealth of the strata in terms of indicators, income/expenditure, or descriptions of well-being partly contribute to describing how poor the poor are. For income/expenditure data, other formal measures such as the poverty gap and severity indices are also available (Foster *et al.*, 1984; Sen, 1976). Developing such indices from the PWR technique described here may also be an area for further study. The use of a reference table such as that produced here, with key statements highlighted along the continuum may be one potential area of such further research.

There are, then, comparable analyses that might be applied to data collected from poverty appraisals using the three separate approaches. A much greater amount of work has gone into developing such analyses from income/expenditure data. This type of data also has intrinsic appeal to policy makers since it is easily translated toward decisions regarding resource

allocation. However, data from PWR and indicator surveys are likely to be particularly useful in determining the ways in which such resources are spent.

6. CONCLUSION

We have successfully identified the number of poor households and described how poor they are using data from PWR on nearly 10,000 households collected in rural South Africa. Combining qualitative and quantitative approaches to data analysis was central to generating the desired appraisal. Careful use of standardized methodology for PWR, alongside further refinements of mixed methods to analyze the data, might increase the utility of PWR processes as a method for poverty appraisal and thus to more effective poverty alleviation.

NOTES

1. This is a slight variation on the pile scoring system used in operational work by the Small Enterprise Foundation.

2. A stokvel is an informal savings group.

3. Mielie meal, or maize meal, is the local staple food.

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